

The Hawaii-based Longline Logbook Summary Report April-June 2013¹

Pacific Islands Fisheries Science Center
Fisheries Monitoring Branch

This report summarizes data on fish catch and fishing effort by Hawaii-based longline vessels during the second quarter of 2013 (Q2-2013). Results are based on the date gear was hauled, as reported by vessel operators to the National Marine Fisheries Service in federal logbooks of daily fishing activity. The report covers longline operations for fishing trips completed in the second quarter of 2013 and most, but not all, Q2-2013 data from trips that began late in the second quarter and continued into the third quarter of 2013. Therefore, the Q2-2013 summary statistics reported here are preliminary.

During Q2-2013, 128 vessels were active in the Hawaii-based fleet, the same number of vessels as in Q2-2012 (Table 1, Fig. 1). They made 375 longline trips (21 less than in Q2-2012), including 360 using deep-set gear to target tuna (7 less than in Q2-2012) and 15 using shallow-set gear to target swordfish (about half as many trips as in Q2-2012; Fig. 2). During Q2-2013, the fleet deployed 10.7 million hooks, about 547,000 fewer than in Q2-2012 (Fig. 3). They fished mainly on the high seas outside the U.S. Exclusive Economic Zone (EEZ) (82% of the total hooks set) followed by the main Hawaiian Islands (MHI) EEZ (8%), the Northwestern Hawaiian Islands (NWHI) EEZ (6%) and the EEZ of the U.S. Pacific Remote Island Areas (PRIA, consisting of U.S. possessions Wake Island, Jarvis Island, Howland Island, Baker Island, Kingman Reef, Palmyra Atoll, and Johnston Atoll) (4%).

In Q2-2013, the Hawaii longline fleet caught 29,999 bigeye tuna (Fig. 4); 85% were caught on the high seas outside the U.S. EEZ. The bigeye tuna catch-per-unit-of-effort (CPUE) on deep-set trips was 2.9 fish per 1000 hooks, down 0.24 from Q2-2012 (Fig. 5). The total albacore catch and the albacore CPUE on deep-set trips in Q2-2013 were 3,604 fish and 0.34 fish per 1000 hooks, respectively (Figs. 6-7). The yellowfin tuna catch in Q2-2013 was 2,819 fish (Fig. 8) and the yellowfin CPUE on deep-set trips was a second-quarter record low 0.26 fish per 1000 hooks (Fig. 9).

The Q2-2013 swordfish catch was 3,820 fish, 33% lower than in Q2-2012 (Fig. 10). In Q2-2013, the swordfish CPUE on shallow-set trips was 9.3 fish per 1000 hooks, about 5% higher than in Q2-2012 (Fig. 11).

The striped marlin catch in Q2-2013 was 2,157 fish and the CPUE on deep-set trips was 0.18 fish per 1000 hooks (Figs. 12-13). The blue marlin catch in Q2-2013 was 1,140 fish and the CPUE on deep-set trips was 0.10 fish per 1000 hooks (Figs. 14-15).

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The fleet caught 12,719 sharks in Q2-2013, of which 196 (2%) were kept. Blue shark comprised 76% of the total shark catch (9,648 fish) (Fig. 16). Blue shark CPUE on shallow-set trips in Q2-2013 was 3.8 fish per 1000 hooks, 0.6 above the CPUE in Q2-2012 (Fig. 17).

In Q2-2013, the Hawaii longline catch of other key pelagic species included 14,616 mahimahi (Fig. 18) with a CPUE of 1.12 fish per 1000 hooks on deep-set trips (Fig. 19); 6,583 moonfish (Fig. 20) with a CPUE of 0.63 fish per 1000 hooks on deep-set trips (Fig. 21); 20,919 pomfret (Fig. 22) with a CPUE of 2.00 fish per 1000 hooks on deep-set trips (Fig. 23); and 4,617 wahoo (Fig. 24) with a CPUE of 0.44 fish per 1000 hooks on deep-set trips (Fig. 25). A high percentage of the catch of these species was kept.

The summary statistics in Table 1 are based on logbook records from all fishing areas combined and all types of longline trips—those setting longline gear shallow and targeting swordfish and those setting their gear deep aimed at catching tuna. Hence, the CPUE figures in Table 1 differ from those reported above, which were calculated using data exclusively from deep-set trips or shallow-set trips, depending on the species of interest.

The longline logbook statistics reported above refer to all fishing areas combined. Q2-2013 summary catch and effort were also compiled by several geographical sub-areas including: the MHI EEZ; the NWHI EEZ; the PRIA EEZ; the combined EEZ of MHI, NWHI and PRIA; and waters outside the U.S. EEZ. These statistics are presented in Tables 2-6. Q2-2013 summary statistics for the entire fishing area are also presented for each distinct trip type: swordfish-targeted trips using shallow-set gear (Table 7) and tuna-targeted trips deploying deep-set gear (Table 8).

This report is available in both PDF and HTML formats on the PIFSC website at <http://www.pifsc.noaa.gov/fmb/reports.php>. The website also provides quarterly and yearly charts and an archive of quarterly and annual summary tables of fish catch and fishing effort from 1991 to the present.

Table 1. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 8/20/2013 10:36:00AM].

Report Coverage		Number of vessels active128 Number of trips375 Number of sets4,448 Number of hooks set10,719,320			
Time Period	2nd Quarter 2013				
Fishing Area	All Areas				
Trip Types	All Trip Types				

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	1,140	1,135	5	0.11
Striped marlin	2,157	2,149	8	0.20
Shortbill spearfish	2,495	2,485	10	0.23
Swordfish	3,820	3,614	206	0.36
Other billfishes	58	57	1	0.01
Total	9,670	9,440	230	0.90
Sharks				
Blue shark	9,648	0	9,648	0.90
Mako sharks	856	170	686	0.08
Thresher sharks	1,743	26	1,717	0.16
Oceanic whitetip shark	173	0	173	0.02
Silky shark	43	0	43	0.00
Other sharks	256	0	256	0.02
Total	12,719	196	12,523	1.19
Tunas				
Albacore	3,604	3,584	20	0.34
Bigeye tuna	29,999	29,648	351	2.80
Yellowfin tuna	2,819	2,758	61	0.26
Bluefin tuna	0	0	0	0.00
Skipjack tuna	5,242	5,165	77	0.49
Other tunas	1	1	0	0.00
Total	41,665	41,156	509	3.89
Other PMUS				
Mahimahi	14,616	14,513	103	1.36
Moonfish	6,583	6,570	13	0.61
Wahoo	4,617	4,600	17	0.43
Oilfish	7,723	7,614	109	0.72
Pomfret	20,919	20,809	110	1.95
Total	54,458	54,106	352	5.08
Total PMUS	118,512	104,898	13,614	11.06
Total Non-PMUS	648	296	352	0.06
Total All Species				
	119,160	105,194	13,966	11.12

Table 2. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 8/20/2013 10:36:00AM].

Report Coverage					Number of vessels active	67
Time Period	2nd Quarter 2013				Number of trips	96
Fishing Area	Main Hawaiian Islands EEZ				Number of sets	381
Trip Types	All Trip Types				Number of hooks set	840,018

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	114	114	0	0.14
Striped marlin	201	200	1	0.24
Shortbill spearfish	516	515	1	0.61
Swordfish	276	245	31	0.33
Other billfishes	5	5	0	0.01
Total	1,112	1,079	33	1.32
Sharks				
Blue shark	1,048	0	1,048	1.25
Mako sharks	58	34	24	0.07
Thresher sharks	128	10	118	0.15
Oceanic whitetip shark	11	0	11	0.01
Silky shark	1	0	1	0.00
Other sharks	4	0	4	0.00
Total	1,250	44	1,206	1.49
Tunas				
Albacore	148	148	0	0.18
Bigeye tuna	2,348	2,273	75	2.80
Yellowfin tuna	590	578	12	0.70
Bluefin tuna	0	0	0	0.00
Skipjack tuna	506	500	6	0.60
Other tunas	0	0	0	0.00
Total	3,592	3,499	93	4.28
Other PMUS				
Mahimahi	624	621	3	0.74
Moonfish	229	227	2	0.27
Wahoo	372	371	1	0.44
Oilfish	579	569	10	0.69
Pomfret	600	588	12	0.71
Total	2,404	2,376	28	2.86
Total PMUS	8,358	6,998	1,360	9.95
Total Non-PMUS	148	134	14	0.18
Total All Species	8,506	7,132	1,374	10.13

Table 3. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 8/20/2013 10:36:00AM].

Report Coverage					Number of vessels active	37
Time Period	2nd Quarter 2013				Number of trips	51
Fishing Area	Northwestern Hawaiian Islands EEZ				Number of sets	314
Trip Types	All Trip Types				Number of hooks set	651,546

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	98	97	1	0.15
Striped marlin	500	496	4	0.77
Shortbill spearfish	172	169	3	0.26
Swordfish	1,116	1,048	68	1.71
Other billfishes	0	0	0	0.00
Total	1,886	1,810	76	2.89
Sharks				
Blue shark	1,084	0	1,084	1.66
Mako sharks	93	13	80	0.14
Thresher sharks	44	2	42	0.07
Oceanic whitetip shark	23	0	23	0.04
Silky shark	3	0	3	0.00
Other sharks	3	0	3	0.00
Total	1,250	15	1,235	1.92
Tunas				
Albacore	390	386	4	0.60
Bigeye tuna	982	950	32	1.51
Yellowfin tuna	281	263	18	0.43
Bluefin tuna	0	0	0	0.00
Skipjack tuna	409	398	11	0.63
Other tunas	0	0	0	0.00
Total	2,062	1,997	65	3.16
Other PMUS				
Mahimahi	2,900	2,878	22	4.45
Moonfish	337	337	0	0.52
Wahoo	214	211	3	0.33
Oilfish	512	499	13	0.79
Pomfret	534	530	4	0.82
Total	4,497	4,455	42	6.90
Total PMUS	9,695	8,277	1,418	14.88
Total Non-PMUS	96	12	84	0.15
Total All Species	9,791	8,289	1,502	15.03

Table 4. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 8/20/2013 10:36:00AM].

Report Coverage					Number of vessels active	31
Time Period	2nd Quarter 2013				Number of trips	35
Fishing Area	Pacific Remote Island Areas (PRIA) EEZ				Number of sets	163
Trip Types	All Trip Types				Number of hooks set	422,722

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	95	95	0	0.22
Striped marlin	56	56	0	0.13
Shortbill spearfish	153	151	2	0.36
Swordfish	60	56	4	0.14
Other billfishes	18	18	0	0.04
Total	382	376	6	0.90
Sharks				
Blue shark	368	0	368	0.87
Mako sharks	38	2	36	0.09
Thresher sharks	102	0	102	0.24
Oceanic whitetip shark	69	0	69	0.16
Silky shark	39	0	39	0.09
Other sharks	192	0	192	0.45
Total	808	2	806	1.91
Tunas				
Albacore	406	399	7	0.96
Bigeye tuna	1,135	1,092	43	2.68
Yellowfin tuna	353	335	18	0.84
Bluefin tuna	0	0	0	0.00
Skipjack tuna	527	509	18	1.25
Other tunas	0	0	0	0.00
Total	2,421	2,335	86	5.73
Other PMUS				
Mahimahi	127	127	0	0.30
Moonfish	33	32	1	0.08
Wahoo	344	338	6	0.81
Oilfish	270	270	0	0.64
Pomfret	603	582	21	1.43
Total	1,377	1,349	28	3.26
Total PMUS	4,988	4,062	926	11.80
Total Non-PMUS	63	4	59	0.15
Total All Species	5,051	4,066	985	11.95

Table 5. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 8/20/2013 10:36:00AM].

Report Coverage					Number of vessels active	96
Time Period	2nd Quarter 2013				Number of trips	144
Fishing Area	Hawaiian Islands EEZ + PRIA EEZ				Number of sets	858
Trip Types	All Trip Types				Number of hooks set	1,914,286

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	307	306	1	0.16
Striped marlin	757	752	5	0.40
Shortbill spearfish	841	835	6	0.44
Swordfish	1,452	1,349	103	0.76
Other billfishes	23	23	0	0.01
Total	3,380	3,265	115	1.77
Sharks				
Blue shark	2,500	0	2,500	1.31
Mako sharks	189	49	140	0.10
Thresher sharks	274	12	262	0.14
Oceanic whitetip shark	103	0	103	0.05
Silky shark	43	0	43	0.02
Other sharks	199	0	199	0.10
Total	3,308	61	3,247	1.73
Tunas				
Albacore	944	933	11	0.49
Bigeye tuna	4,465	4,315	150	2.33
Yellowfin tuna	1,224	1,176	48	0.64
Bluefin tuna	0	0	0	0.00
Skipjack tuna	1,442	1,407	35	0.75
Other tunas	0	0	0	0.00
Total	8,075	7,831	244	4.22
Other PMUS				
Mahimahi	3,651	3,626	25	1.91
Moonfish	599	596	3	0.31
Wahoo	930	920	10	0.49
Oilfish	1,361	1,338	23	0.71
Pomfret	1,737	1,700	37	0.91
Total	8,278	8,180	98	4.32
Total PMUS	23,041	19,337	3,704	12.04
Total Non-PMUS	307	150	157	0.16
Total All Species				
	23,348	19,487	3,861	12.20

Table 6. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 8/20/2013 10:36:00AM].

Report Coverage					Number of vessels active	126
Time Period	2nd Quarter 2013				Number of trips	346
Fishing Area	Outside U.S. EEZ				Number of sets	3,590
Trip Types	All Trip Types				Number of hooks set	8,805,034

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	833	829	4	0.09
Striped marlin	1,400	1,397	3	0.16
Shortbill spearfish	1,654	1,650	4	0.19
Swordfish	2,368	2,265	103	0.27
Other billfishes	35	34	1	0.00
Total	6,290	6,175	115	0.71
Sharks				
Blue shark	7,148	0	7,148	0.81
Mako sharks	667	121	546	0.08
Thresher sharks	1,469	14	1,455	0.17
Oceanic whitetip shark	70	0	70	0.01
Silky shark	0	0	0	0.00
Other sharks	57	0	57	0.01
Total	9,411	135	9,276	1.07
Tunas				
Albacore	2,660	2,651	9	0.30
Bigeye tuna	25,534	25,333	201	2.90
Yellowfin tuna	1,595	1,582	13	0.18
Bluefin tuna	0	0	0	0.00
Skipjack tuna	3,800	3,758	42	0.43
Other tunas	1	1	0	0.00
Total	33,590	33,325	265	3.81
Other PMUS				
Mahimahi	10,965	10,887	78	1.25
Moonfish	5,984	5,974	10	0.68
Wahoo	3,687	3,680	7	0.42
Oilfish	6,362	6,276	86	0.72
Pomfret	19,182	19,109	73	2.18
Total	46,180	45,926	254	5.24
Total PMUS	95,471	85,561	9,910	10.84
Total Non-PMUS	341	146	195	0.04
Total All Species	95,812	85,707	10,105	10.88

Table 7. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 8/20/2013 10:36:00AM].

Report Coverage					Number of vessels active	8
Time Period	2nd Quarter 2013				Number of trips	15
Fishing Area	All Areas				Number of sets	224
Trip Types	Swordfish Targeted Trips				Number of hooks set	251,210

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	45	44	1	0.18
Striped marlin	269	267	2	1.07
Shortbill spearfish	35	35	0	0.14
Swordfish	2,341	2,161	180	9.32
Other billfishes	0	0	0	0.00
Total	2,690	2,507	183	10.71
Sharks				
Blue shark	942	0	942	3.75
Mako sharks	141	36	105	0.56
Thresher sharks	12	0	12	0.05
Oceanic whitetip shark	20	0	20	0.08
Silky shark	0	0	0	0.00
Other sharks	1	0	1	0.00
Total	1,116	36	1,080	4.44
Tunas				
Albacore	11	11	0	0.04
Bigeye tuna	142	140	2	0.57
Yellowfin tuna	80	80	0	0.32
Bluefin tuna	0	0	0	0.00
Skipjack tuna	6	6	0	0.02
Other tunas	0	0	0	0.00
Total	239	237	2	0.95
Other PMUS				
Mahimahi	2,910	2,873	37	11.58
Moonfish	1	1	0	0.00
Wahoo	16	16	0	0.06
Oilfish	304	276	28	1.21
Pomfret	4	4	0	0.02
Total	3,235	3,170	65	12.88
Total PMUS	7,280	5,950	1,330	28.98
Total Non-PMUS	4	1	3	0.02
Total All Species				
	7,284	5,951	1,333	29.00

Table 8. Quarterly summary report of fishing effort and catch statistics for U.S. longline vessels landing in Hawaii as derived from NMFS Western Pacific Daily Longline Fishing Log records. [PIFSC Information Management System, Longline Logbook Data, 8/20/2013 10:36:00AM].

Report Coverage					Number of vessels active	124
Time Period	2nd Quarter 2013				Number of trips	360
Fishing Area	All Areas				Number of sets	4,224
Trip Types	Tuna Targeted Trips				Number of hooks set	10,468,110

Pelagic Management Unit Species (PMUS)	Number Caught	Number Kept	Number Released	CPUE - Number Caught per 1000 hooks
Billfishes				
Blue marlin	1,095	1,091	4	0.10
Striped marlin	1,888	1,882	6	0.18
Shortbill spearfish	2,460	2,450	10	0.23
Swordfish	1,479	1,453	26	0.14
Other billfishes	58	57	1	0.01
Total	6,980	6,933	47	0.67
Sharks				
Blue shark	8,706	0	8,706	0.83
Mako sharks	715	134	581	0.07
Thresher sharks	1,731	26	1,705	0.17
Oceanic whitetip shark	153	0	153	0.01
Silky shark	43	0	43	0.00
Other sharks	255	0	255	0.02
Total	11,603	160	11,443	1.11
Tunas				
Albacore	3,593	3,573	20	0.34
Bigeye tuna	29,857	29,508	349	2.85
Yellowfin tuna	2,739	2,678	61	0.26
Bluefin tuna	0	0	0	0.00
Skipjack tuna	5,236	5,159	77	0.50
Other tunas	1	1	0	0.00
Total	41,426	40,919	507	3.96
Other PMUS				
Mahimahi	11,706	11,640	66	1.12
Moonfish	6,582	6,569	13	0.63
Wahoo	4,601	4,584	17	0.44
Oilfish	7,419	7,338	81	0.71
Pomfret	20,915	20,805	110	2.00
Total	51,223	50,936	287	4.89
Total PMUS	111,232	98,948	12,284	10.63
Total Non-PMUS	644	295	349	0.06
Total All Species	111,876	99,243	12,633	10.69

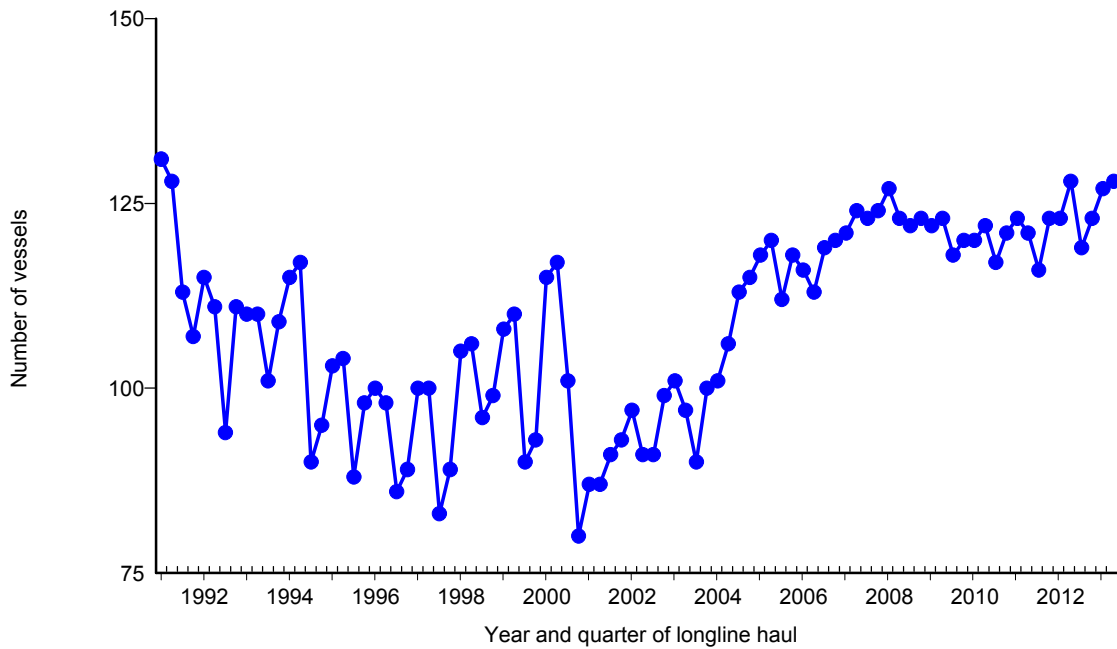


Figure 1. Number of active longline vessels based and landing in Hawaii, by quarter, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:00:50AM]

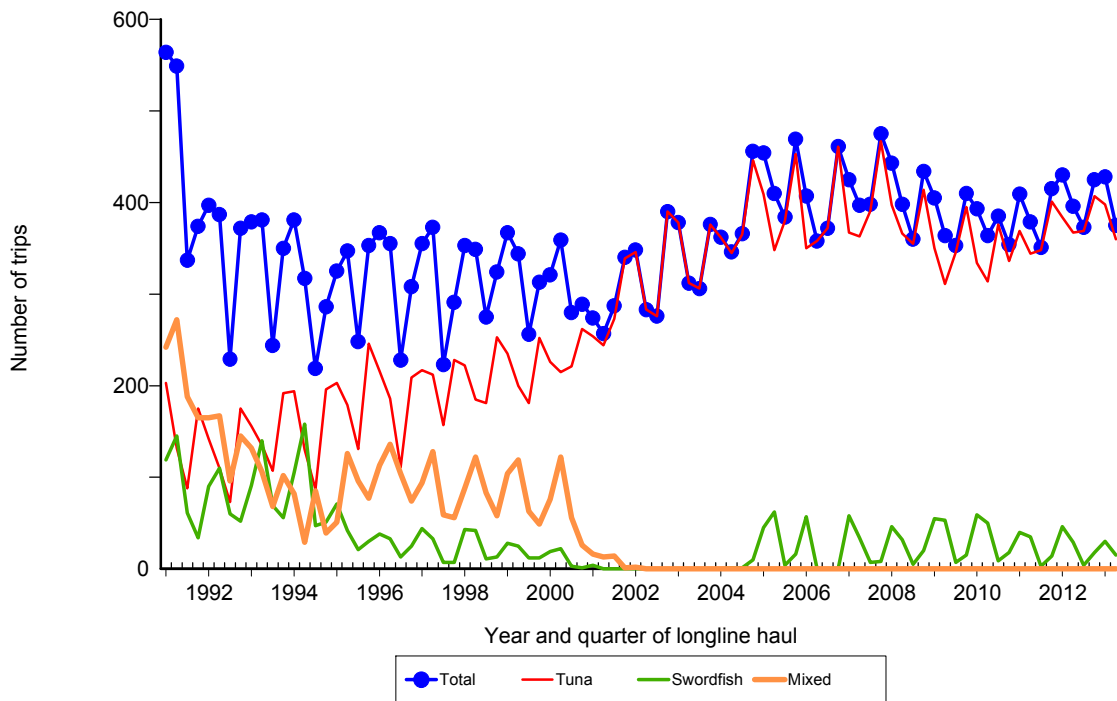


Figure 2. Number of fishing trips by longline vessels based and landing in Hawaii, by quarter and trip type, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:00:50AM]

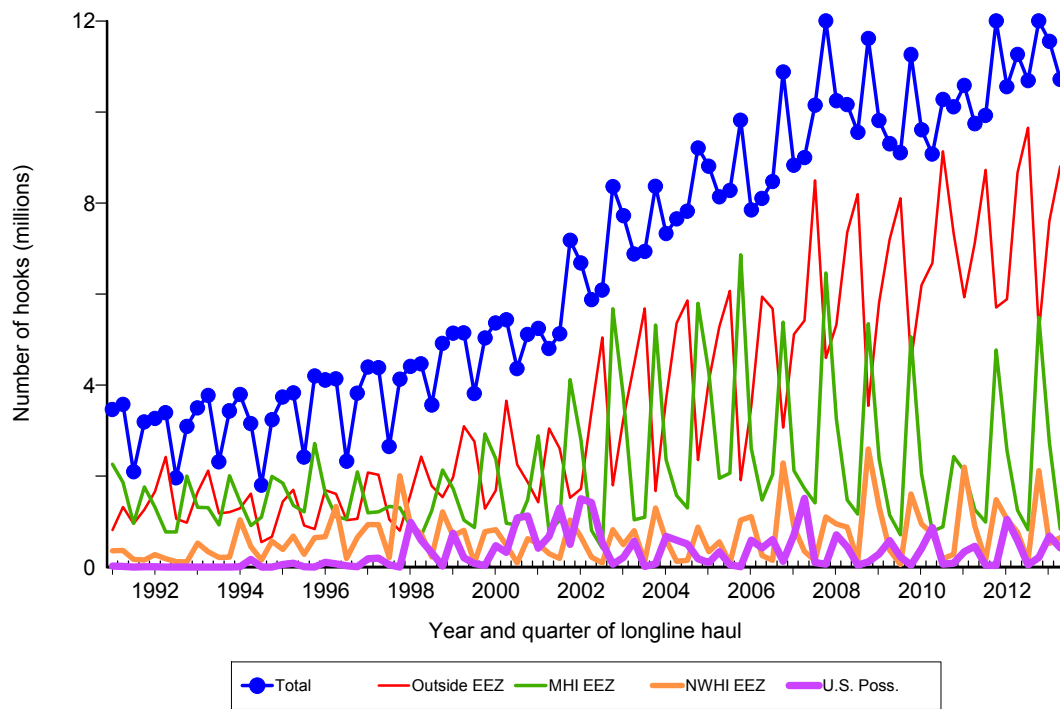


Figure 3. Number of hooks set by longline vessels based and landing in Hawaii, by quarter and fishing area, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:02:44AM]

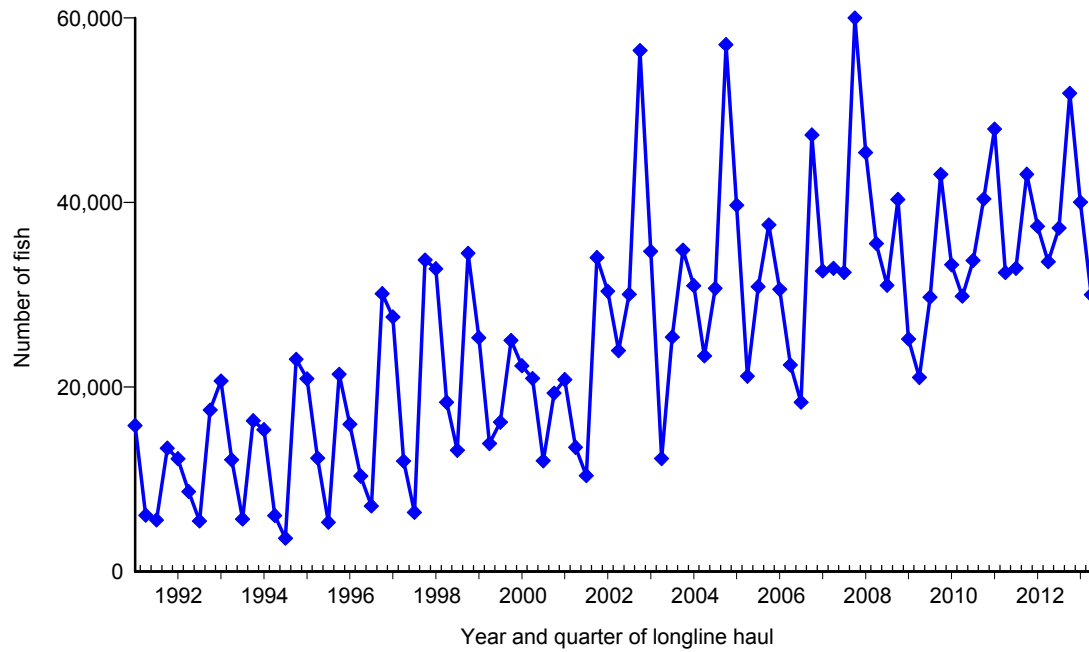


Figure 4. Quarterly catch of bigeye tuna by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:03:08AM]

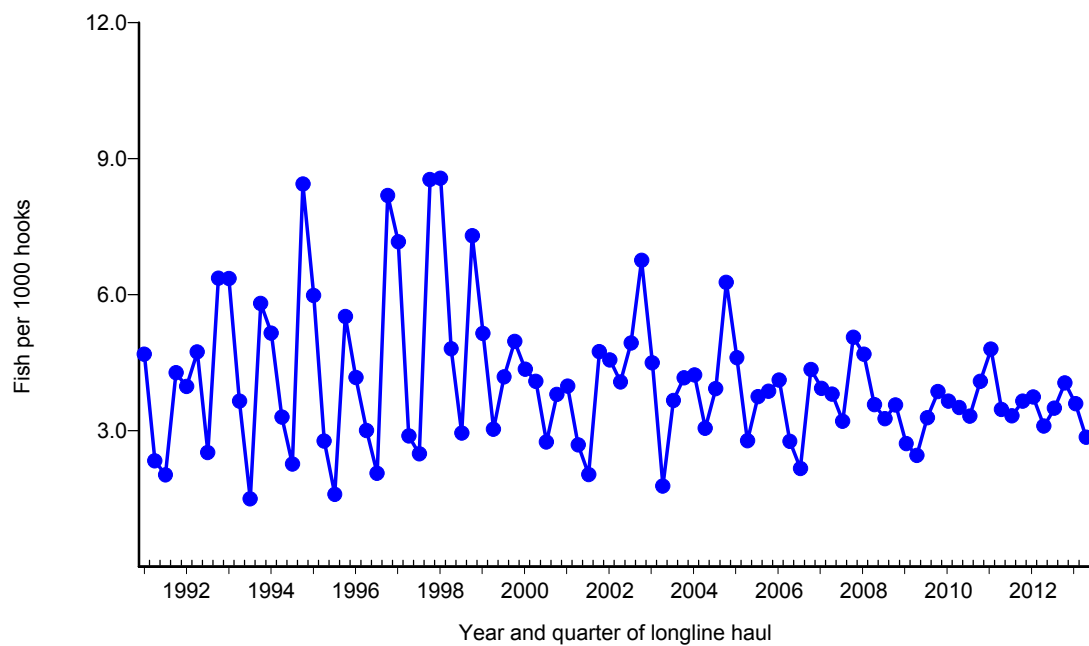


Figure 5. Quarterly CPUE of bigeye tuna (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:03:08AM]

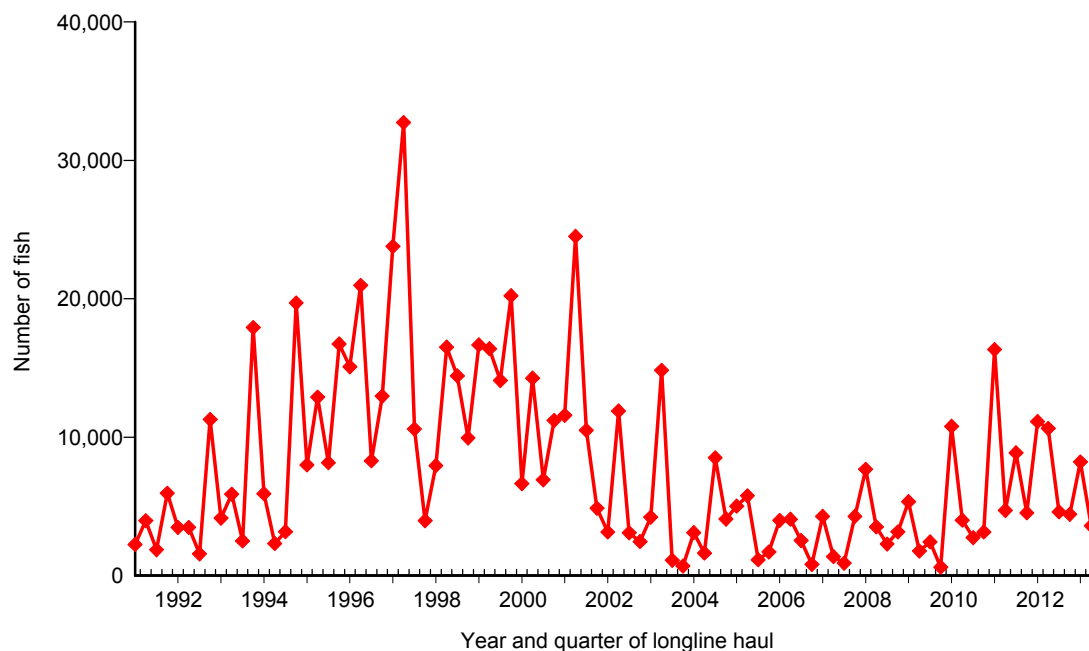


Figure 6. Quarterly catch of albacore by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:03:37AM]

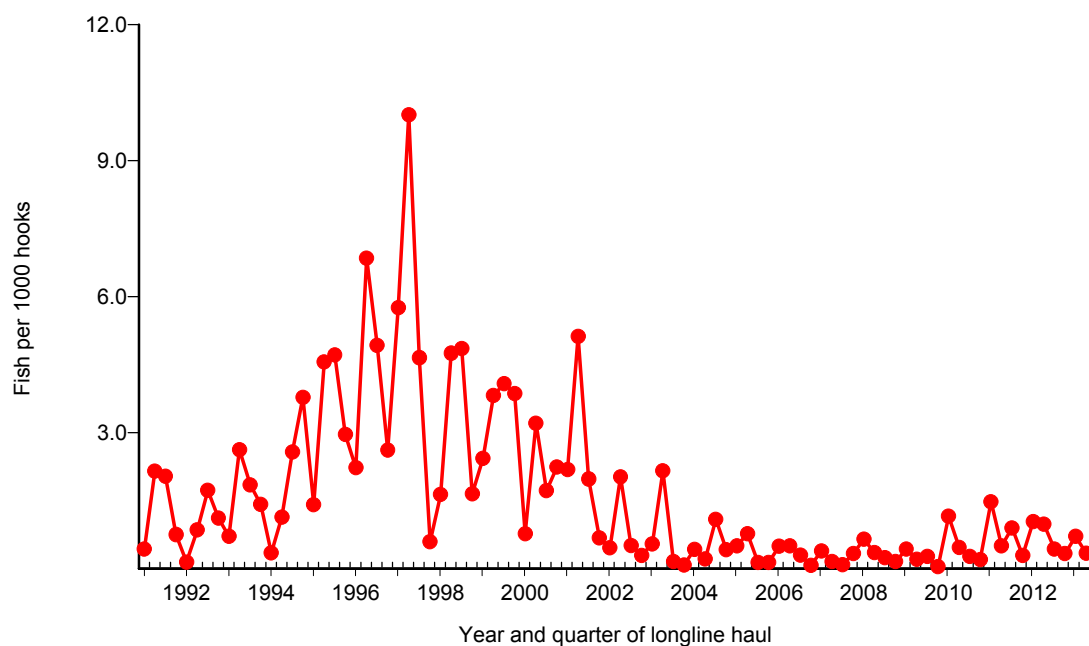


Figure 7. Quarterly CPUE of albacore (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:03:37AM]

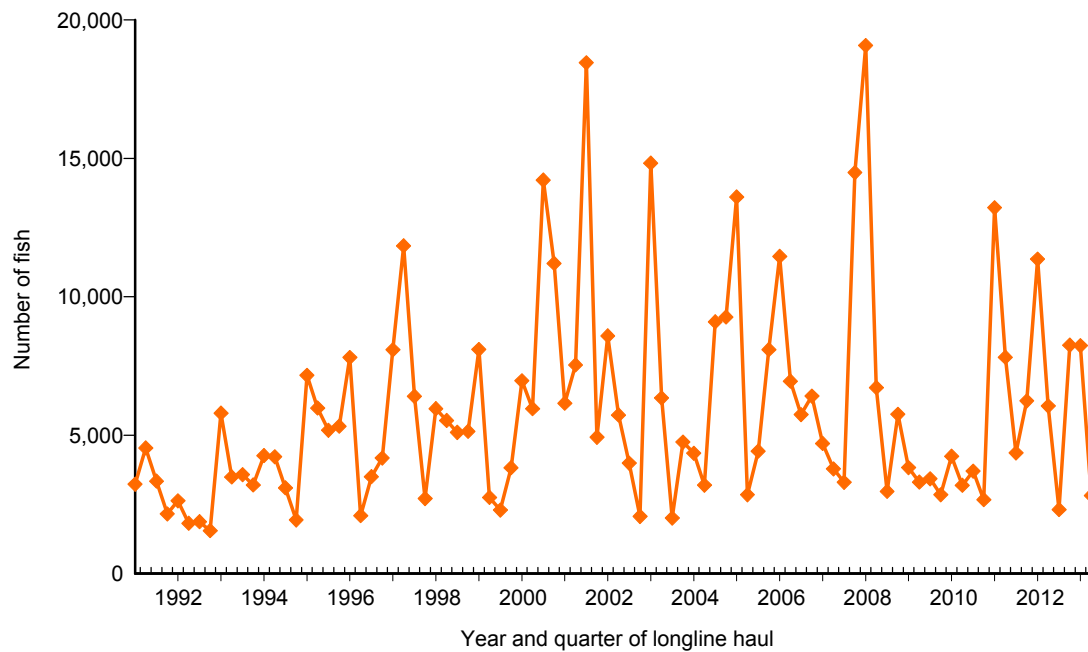


Figure 8. Quarterly catch of yellowfin tuna by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:04:03AM]

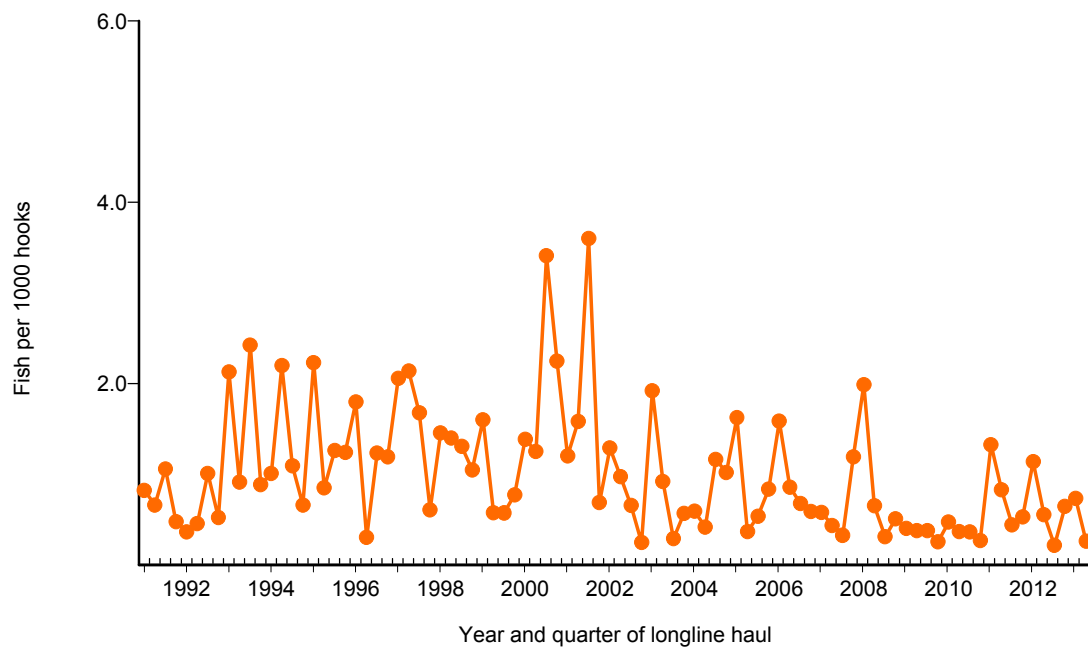


Figure 9. Quarterly CPUE of yellowfin tuna (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:04:03AM]

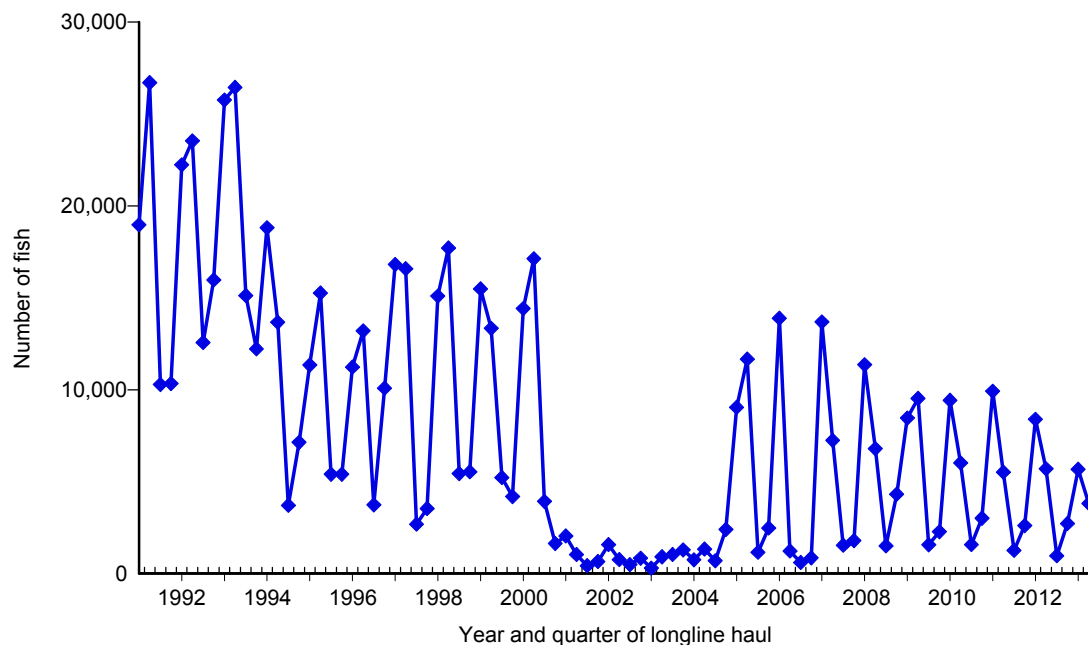


Figure 10. Quarterly catch of swordfish by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:04:29AM]

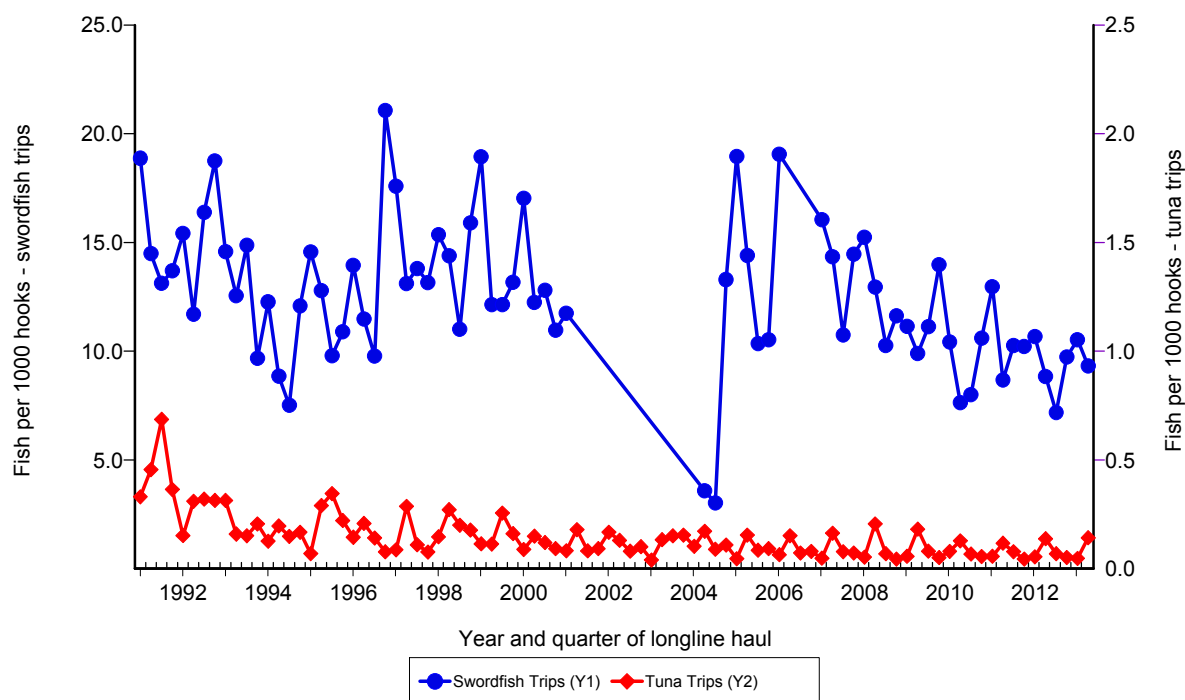


Figure 11. Quarterly CPUE of swordfish (fish per 1000 hooks) on swordfish trips and tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:04:29AM]

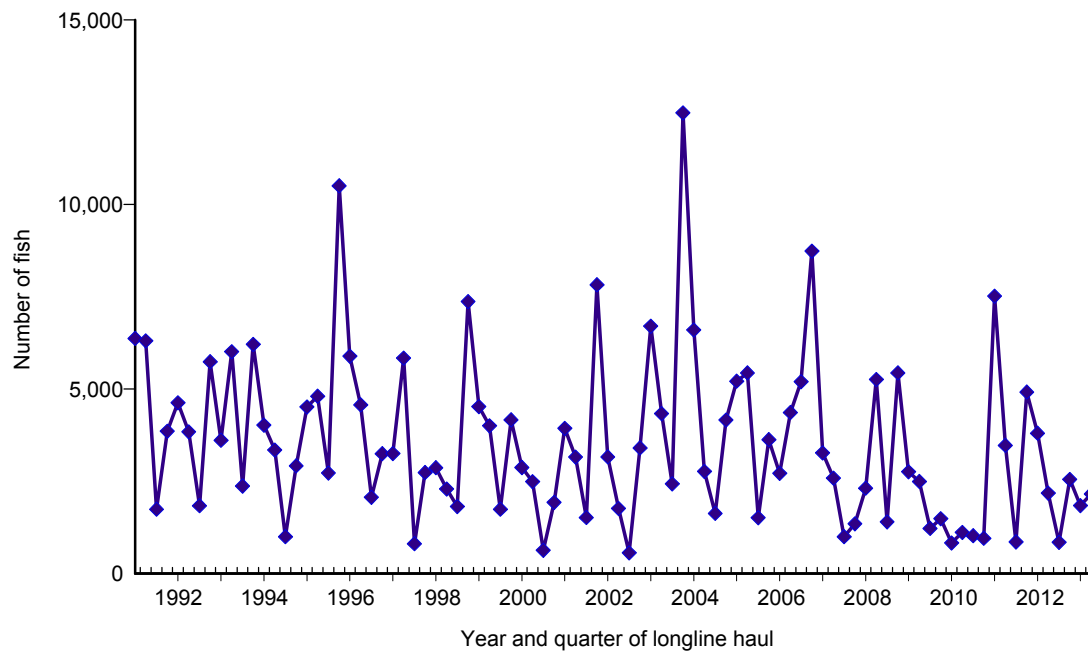


Figure 12. Quarterly catch of striped marlin by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:04:56AM]

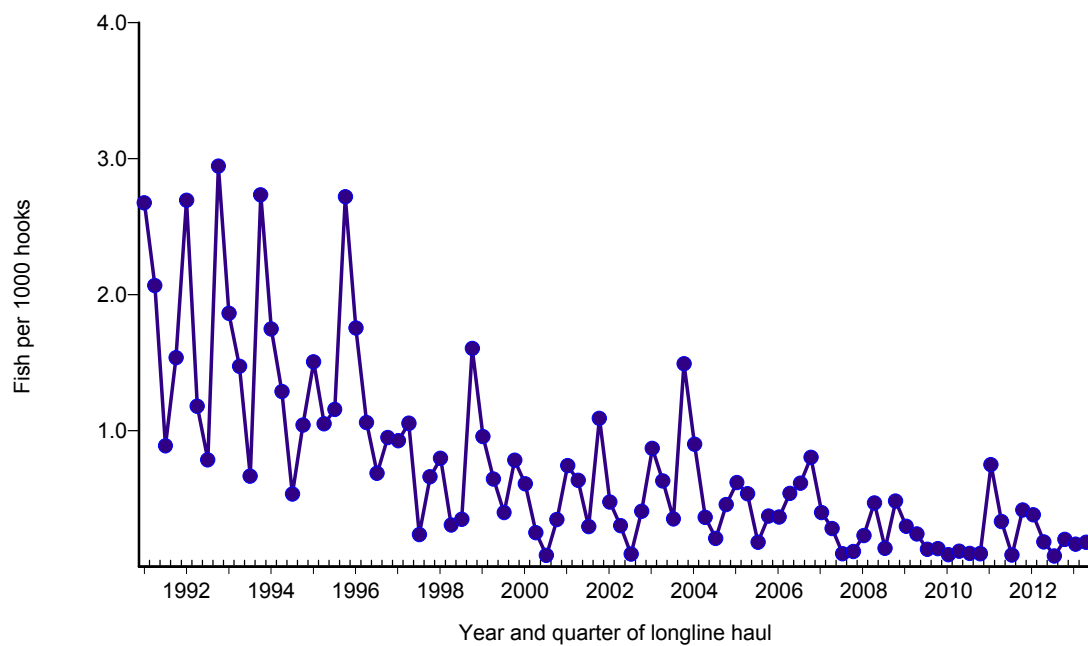


Figure 13. Quarterly CPUE of striped marlin (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:04:56AM]

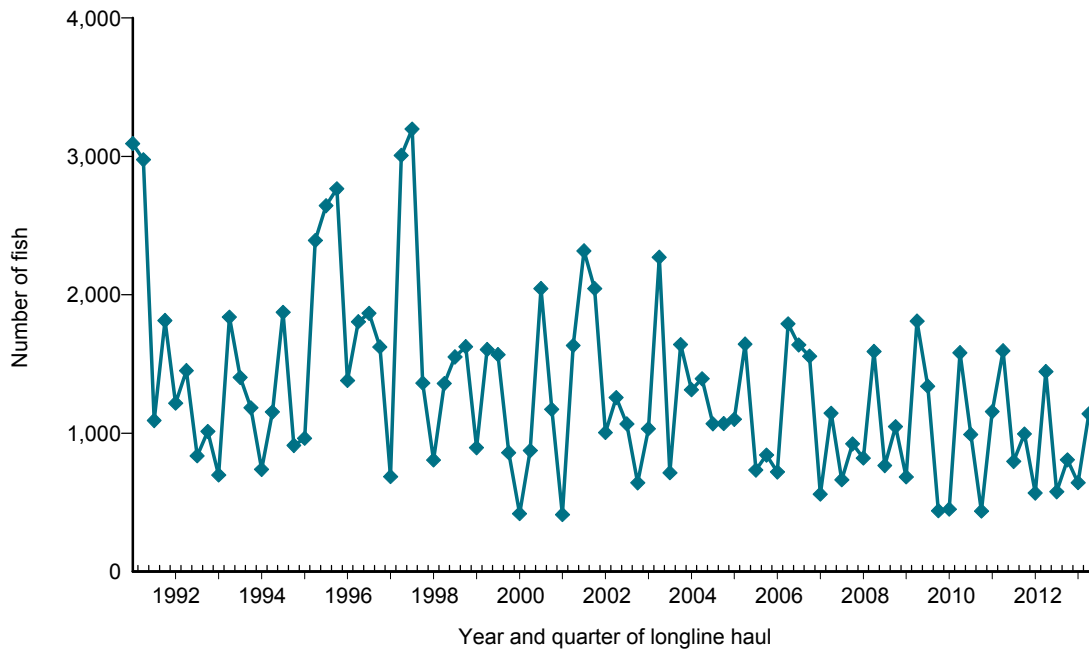


Figure 14. Quarterly catch of blue marlin by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:05:22AM]

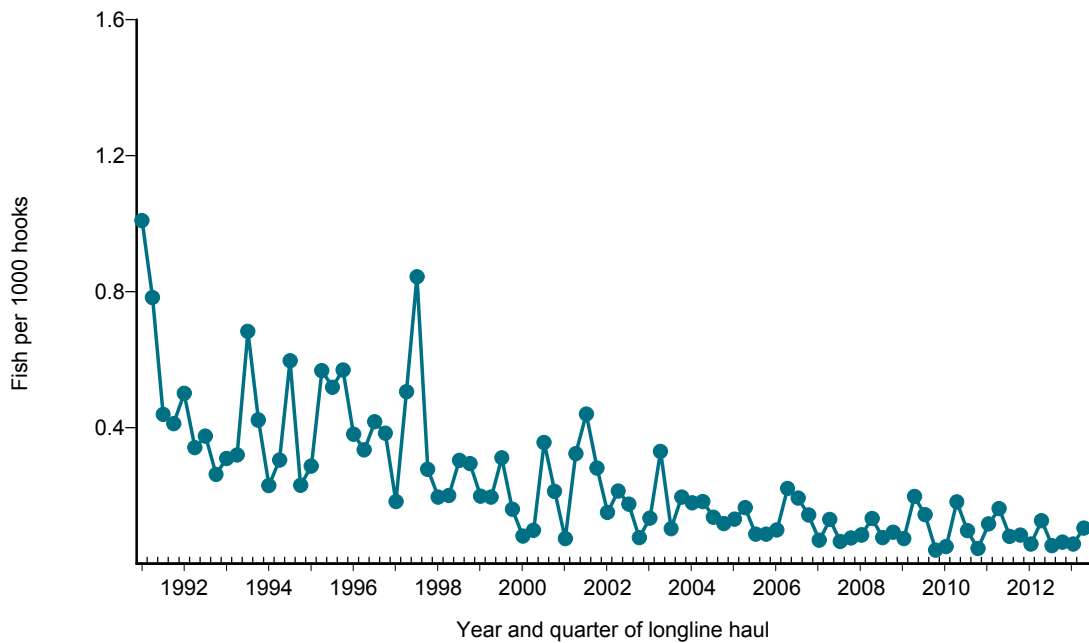


Figure 15. Quarterly CPUE of blue marlin (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:05:22AM]

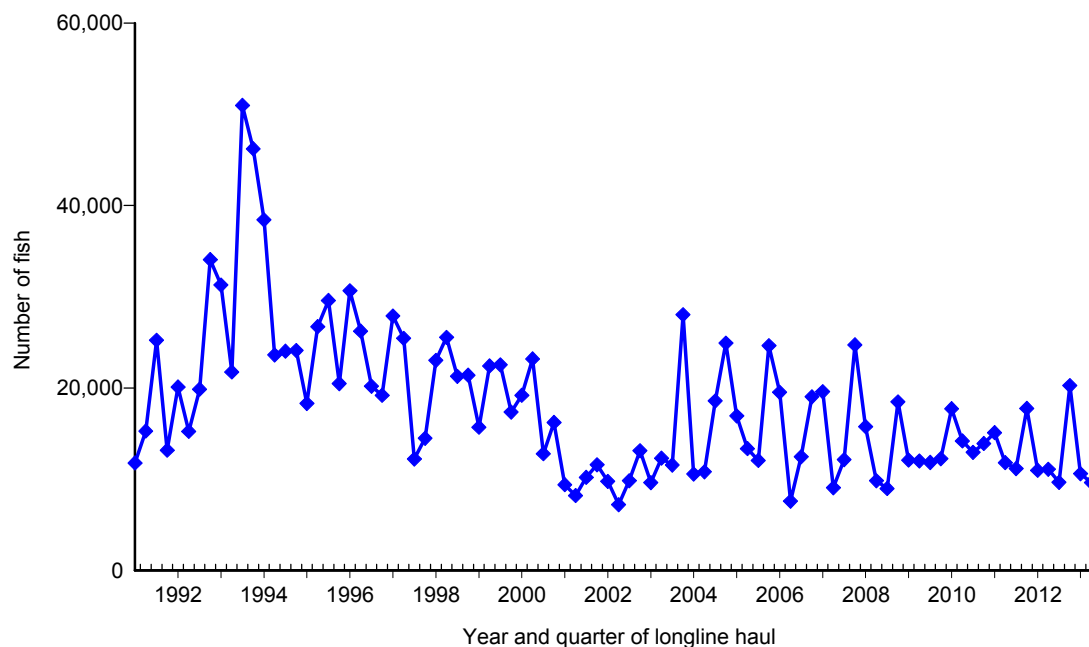


Figure 16. Quarterly catch of blue shark by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:05:48AM]

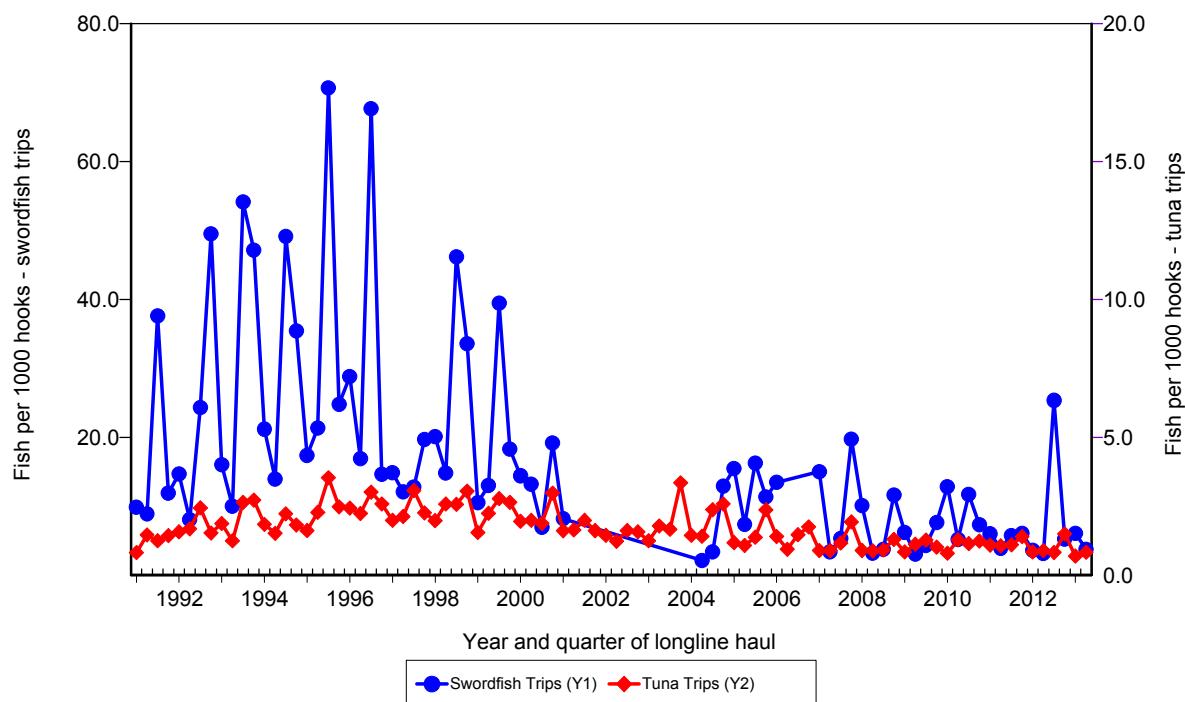


Figure 17. Quarterly CPUE of blue shark (fish per 1000 hooks) on swordfish trips and tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:05:48AM]

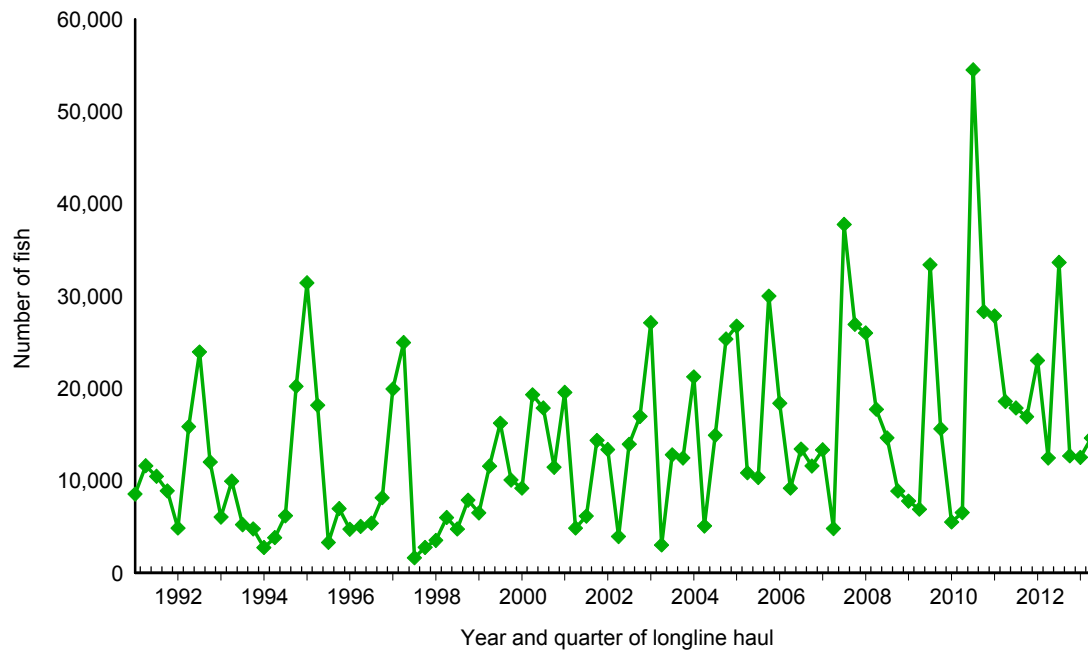


Figure 18. Quarterly catch of mahimahi by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:06:16AM]

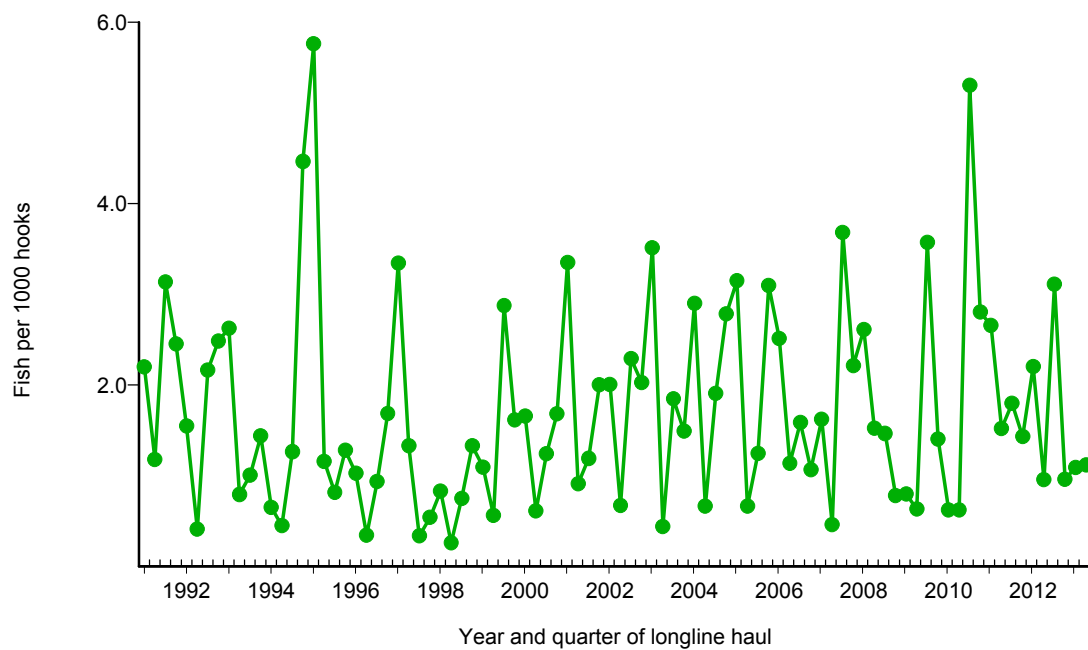


Figure 19. Quarterly CPUE of mahimahi (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:06:16AM]

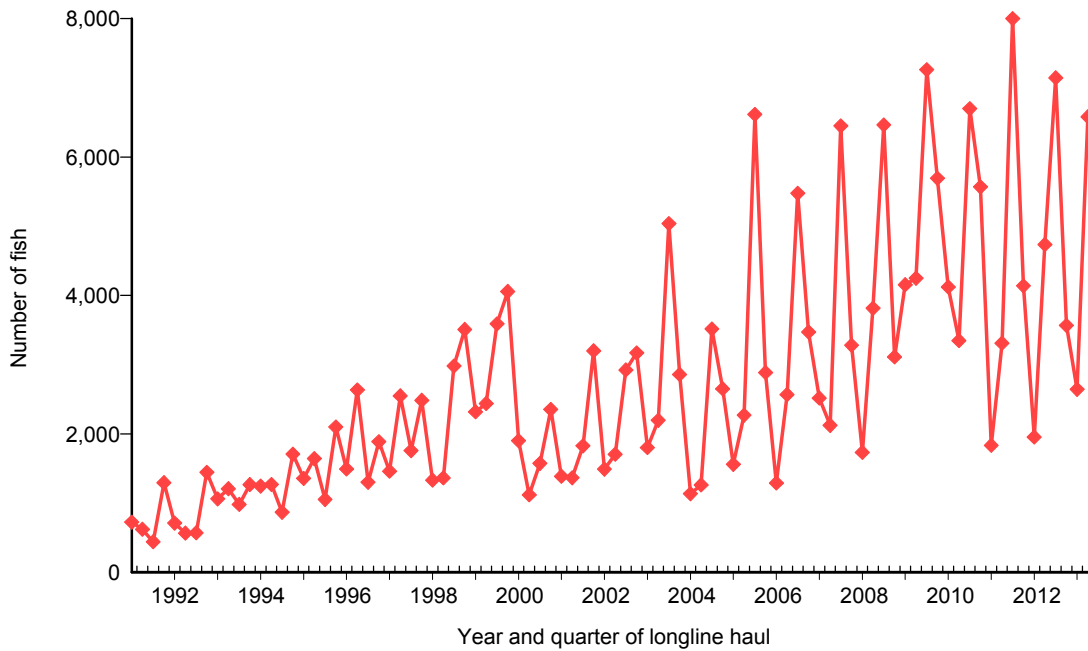


Figure 20. Quarterly catch of moonfish by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:06:42AM]

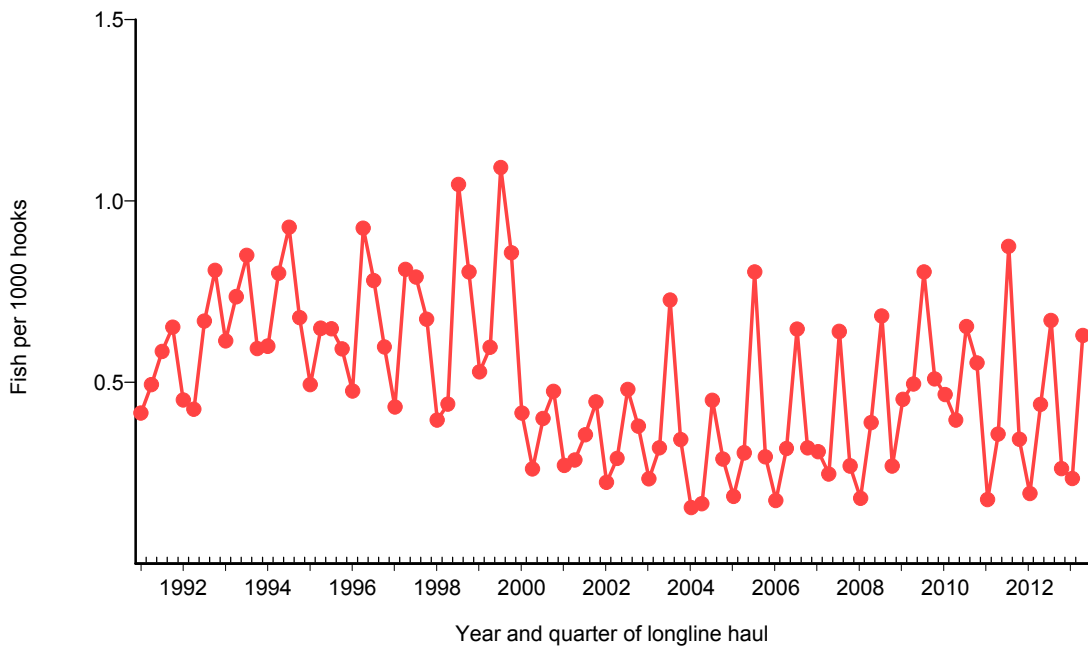


Figure 21. Quarterly CPUE of moonfish (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:06:42AM]

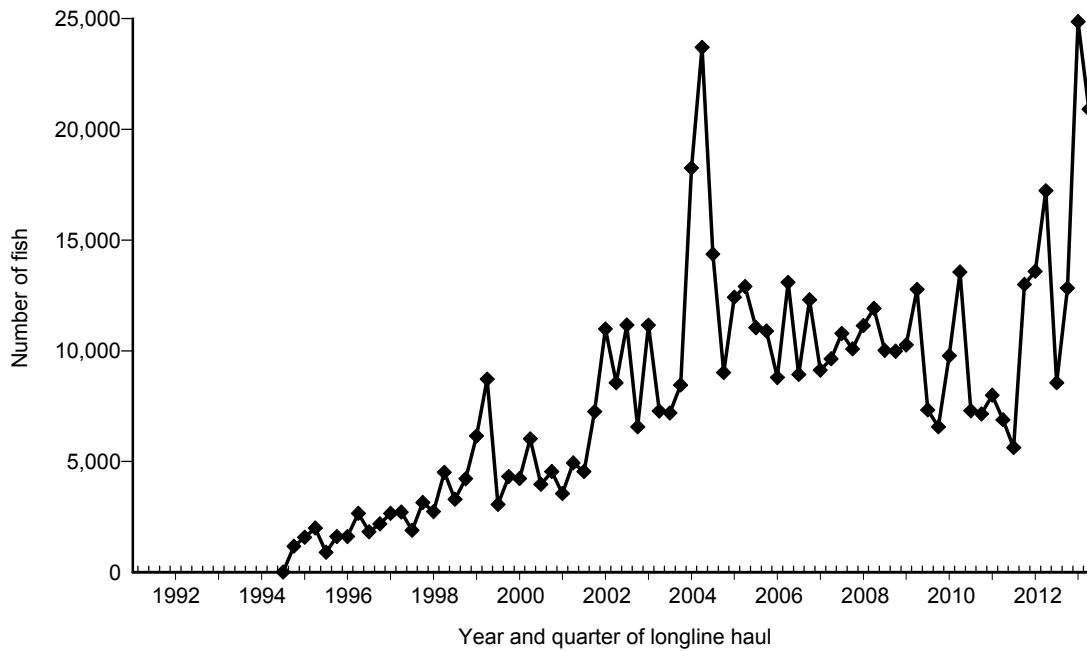


Figure 22. Quarterly catch of pomfret by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:07:09AM]

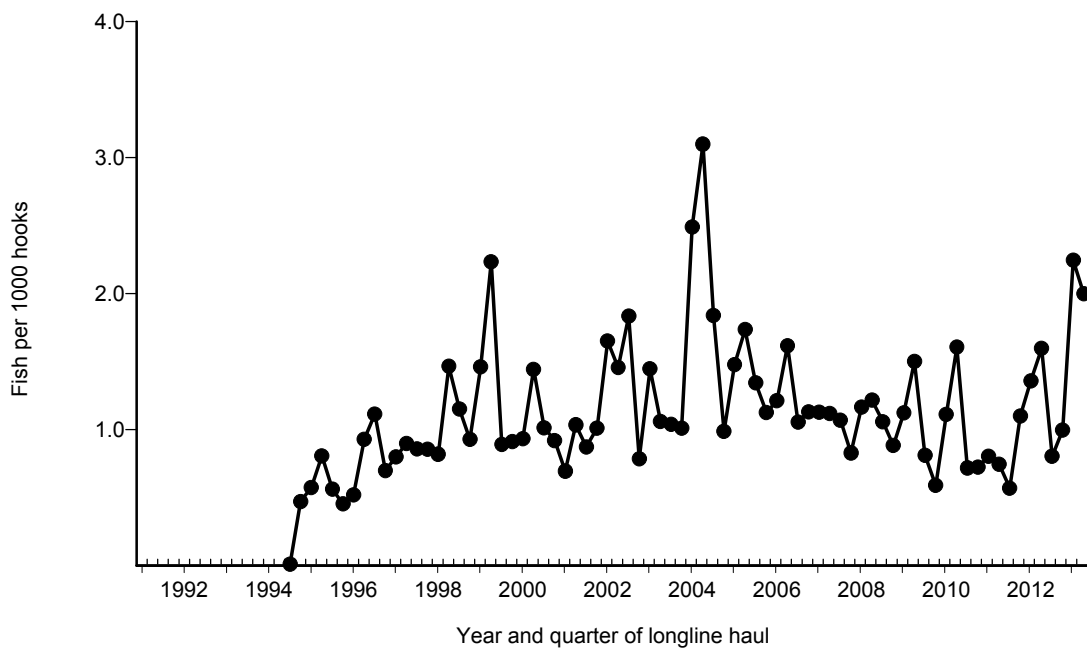


Figure 23. Quarterly CPUE of pomfret (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:07:09AM]

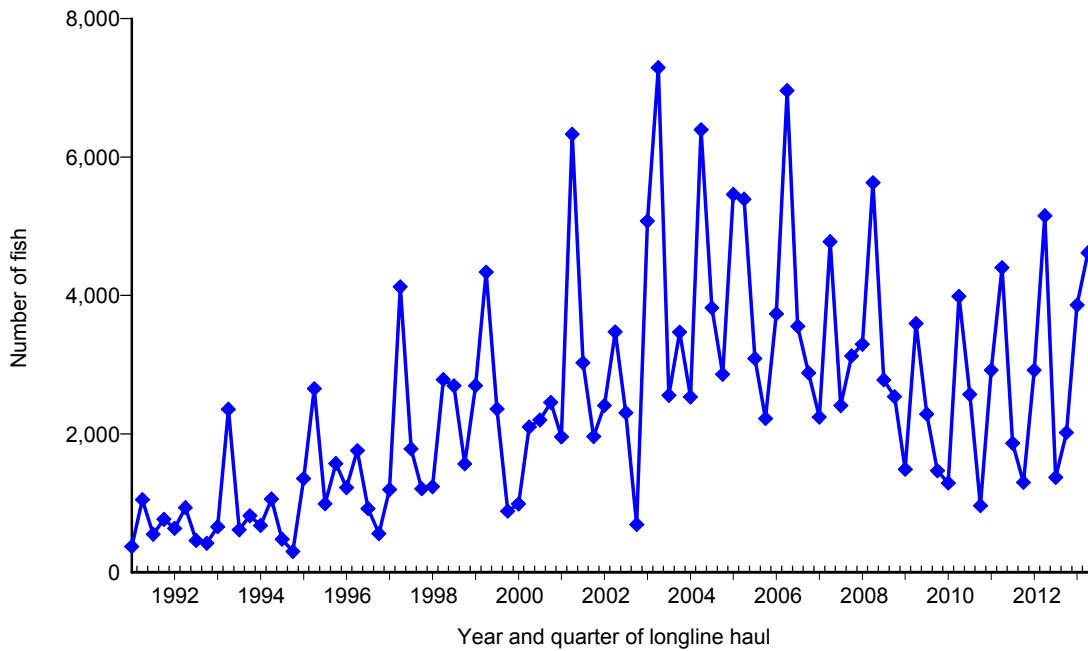


Figure 24. Quarterly catch of wahoo by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:07:36AM]

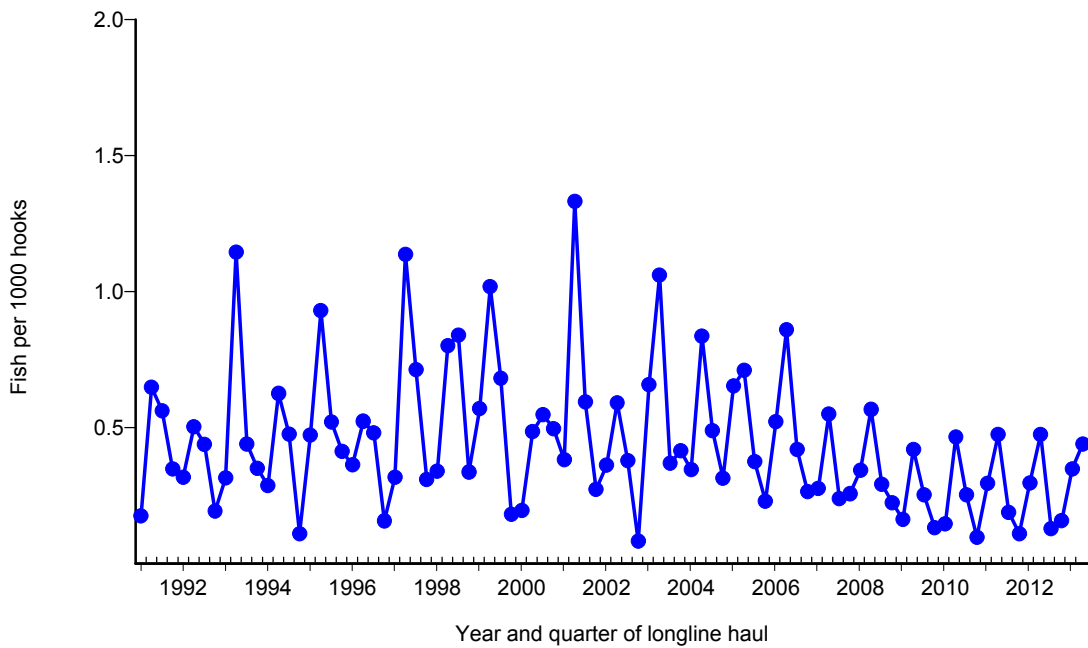


Figure 25. Quarterly CPUE of wahoo (fish per 1000 hooks) on tuna trips by longline vessels based and landing in Hawaii, 1991-2013. [PIFSC IMS, Longline Logbook Data, 8/20/2013 10:07:36AM]